Appendix A
Request Letter to the IESO

Ministry of Energy, Northern Development and Mines

Office of the Minister

Office of the Associate Minister of Energy

77 Grenville Street, 10th Floor
Toronto ON M7A 2C1
Tel.: 416-327-6758

Ministère de l'Énergie, du Développement du Nord et des Mines

Bureau du ministre

Bureau du ministre associé de l'Énergie

77, rue Grenville, 10e étage
Toronto ON M7A 2C1
Tél. : 416 327-6758

Ontario

NOV 0 6 2019

Mr. Peter Gregg
President and Chief Executive Officer
Independent Electricity System Operator
1600–120 Adelaide Street West
Toronto ON M5H 1T1

Dear Mr. Gregg:

Re: Independent Electricity System Operator Report on Billing Practices, Industrial Conservation Initiative (ICI) and other matters.

I, Greg Rickford, write in my capacity as the Minister of Energy, Northern Development and Mines, with the support of Bill Walker, Associate Minister of Energy, in order to exercise the statutory power I have under section 25.4 of the *Electricity Act, 1998* (the "Act") to require the Independent Electricity System Operator ("IESO") to examine and report back to the Ministry of Energy, Northern Development and Mines ("ENDM") with advice on the questions outlined below.

Background

In April 2019, ENDM launched an industrial electricity pricing consultation in response to stakeholder concerns. The consultation included ten regional in-person sessions with key sectors including the automotive, mining, steel, forestry, manufacturing, chemical and agriculture sectors, as well as more focused consultations with industry-representative organizations.

Two of the themes that ENDM heard from industrial consumers related to regulatory burden and electricity cost-certainty. In particular, specific issues were raised related to information reporting, peak demand measurement, billing complexity, customer service, and Global Adjustment ("GA") fluctuations.

.../cont'd

Section 25.4 Report-Back and Timing

Therefore, I require IESO to review and report-back to ENDM on opportunities to improve billing and settlement processes as well as customer service practices for electricity market participants. The report should also include an assessment of current processes and practices related to GA estimation and peak demand measurement. The report should be provided to ENDM by no later than February 28, 2020.

In this regard, IESO shall:

1. Review its current bill presentment activities and processes to identify ways that electricity bills can be improved, with a particular focus on simplification, while still providing the information required under IESO Market Rules to all market participants;

2. Review its customer service processes, with a particular focus on market participants that operate load facilities, in order to identify areas where IESO can improve its customer service activities, processes and practices;

3. Review its current GA estimation processes, in order to determine where there is the potential to improve the manner by which IESO calculates its current estimation of GA or remove the estimation process; and

4. Review its peak demand data publication processes in order to determine where there is potential for improvement and to provide an assessment of the implications of using real-time data for Peak Demand Factor determination.

In carrying out its work to complete this review and report back, it is anticipated that IESO will consult with relevant stakeholders, where appropriate, in a manner that ensures that the interests of all relevant parties are considered.

This letter is effective as of the date hereof.

Sincerely,

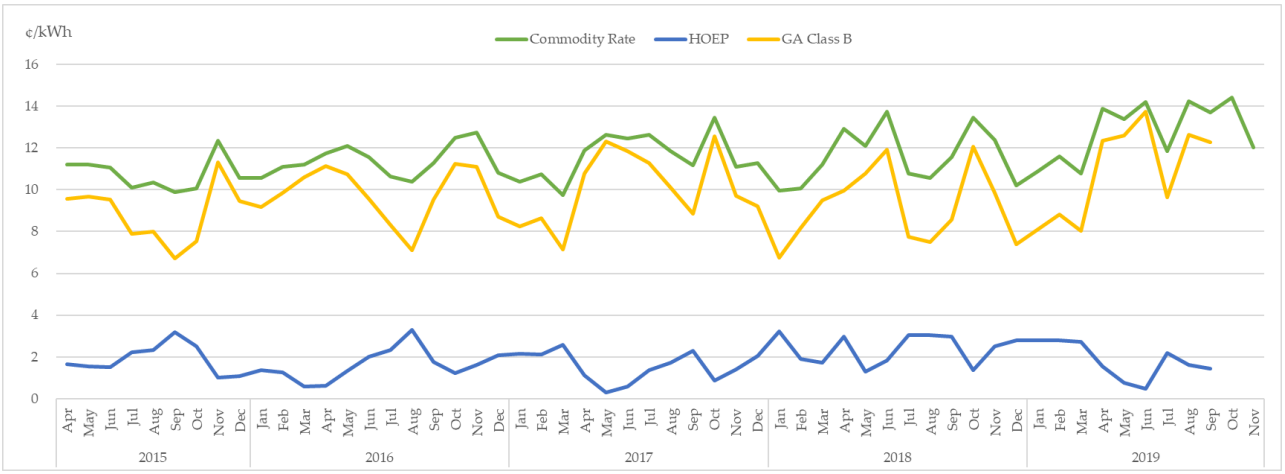
The Honourable Greg Rickford
Minister of Energy, Northern Development and Mines

The Honourable Bill Walker
Associate Minister of Energy

Appendix B
Backgrounder on Seasonal Dynamics in Inputs to Commodity and GA Rates

For Class B customers, the Commodity Rate comprises two components: the wholesale price (the Hourly Ontario Energy Price, or HOEP) and the Global Adjustment (GA), as shown in Figure 1. The average month-to-month differential in Commodity Rate in 2015 – 2017 is 0.8 cent/kilowatt-hour (¢/kWh) while the average differential in 2018 – 2019 is 1.36 ¢/kWh. The GA and the monthly average HOEP are highly and negatively correlated, and the HOEP alone can explain 78% of the variance in the GA. If the average HOEP changes by $10, the GA estimate could change by more than $200 million. The HOEP is driven by many market forces (both internal and external to Ontario) and technical factors, which makes it very difficult to forecast.

Figure 1 – Commodity Rate, 2015 – 2019



The seasonal dynamics of GA Allocated Quantity of Energy Withdrawn (AQEW) and the corresponding GA costs in the years 2015 – 2019 have been as follows:

- As the Actual GA Rate is the ratio of the corresponding GA costs to AQEW, the volatility patterns of the latter two explain the volatility pattern of the Actual GA Rate, with the seasonal peaks around May and October, and seasonal dips around January and August, as shown in Figure 1. The Actual GA Rate in August 2019 is a one-time special case explained in the report.
- AQEW typically has had two yearly peaks around July and January, and two dips around April and October, as shown in Figure 2
- The associated GA costs have typically had two yearly peaks around June and October, and two dips around February and September due to weather resulting in a lower demand (AQEW), as shown in Figure 3
- Although AQEW has been steadily declining (by about 15 – 20% in total), the corresponding GA costs have been steadily increasing (by about 15 – 20% in total) in the five-year period of 2015 – 2019

This has driven both the increase in the Commodity Rate, and more importantly, the increase in volatility of the Commodity Rate and the volatility of the GA estimates.

Figure 2 – Final AQEWs, 2015 – 2019

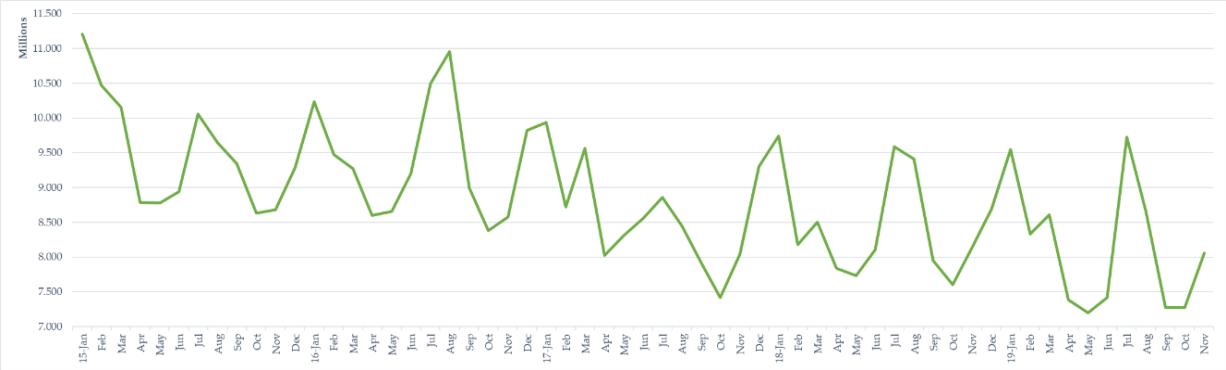
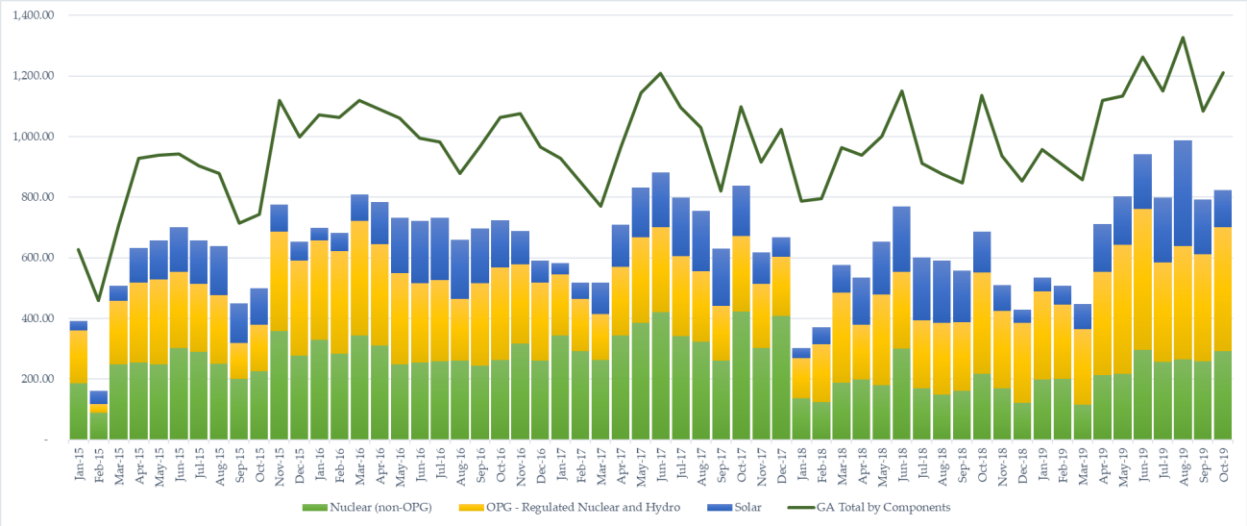


Figure 3 - Dynamics of Major GA Components vs GA Total (2015-2019)



Appendix C
Evaluation Criteria for the Proposed 1st Estimate Model

The average month-to-month differential in the 1st Estimate Rates is a representative measure of the estimate's volatility, while the average deviation and sample standard deviation of the estimate from the Actual Global Adjustment (GA) Rate measures the closeness of the estimate to the Actual GA Rate. The summary of these measures in the Jan. 2018 - Nov. 2019 time period is shown in Table 1.

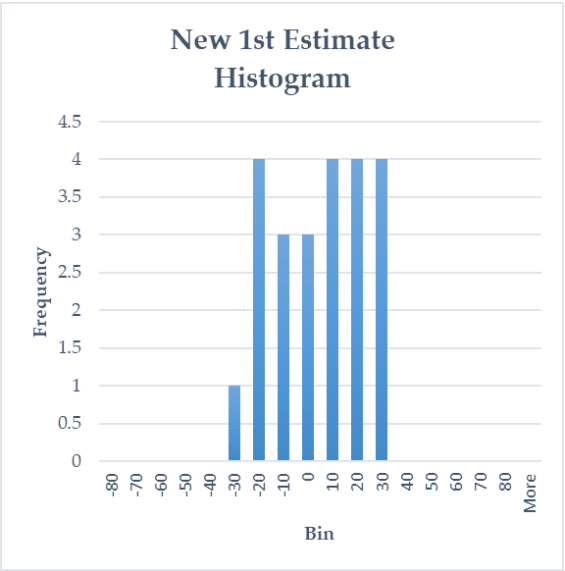
Table 1 - Quality Measures of Various 1st Estimates

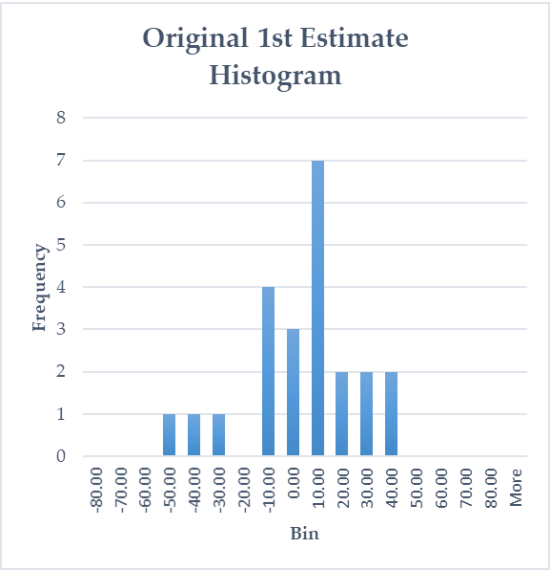
$/MWh	Min.	Max.	Average Month-to-Month Differential	Average Deviation from Actual	Sample Standard Deviation from Actual
Actual GA Rate	67.37	139.04	17.39	--	--
Current 1st GA Estimate	67.41	178.78	26.65	16.48	22.80
Proposed 1st GA Estimate	**67.40**	**158.61**	**15.90**	**16.93**	**19.12**

The volatility of the proposed 1st Estimate Rate is 40 per cent lower than the volatility of the current 1st Estimate. The average deviation from the Actual GA Rate for the proposed 1st Estimate is comparable with the average deviation for the current 1st Estimate.

The closeness of these estimates to the Actual GA Rate can be visualized through the histograms of monthly deviations from the Actual GA Rate (the same Jan. 2018 – Nov. 2019 time period as shown in Figure 1.

Figure 1 - Histograms of Monthly Deviations from Actual GA Rate (Jan. 2018 - Nov. 2019)

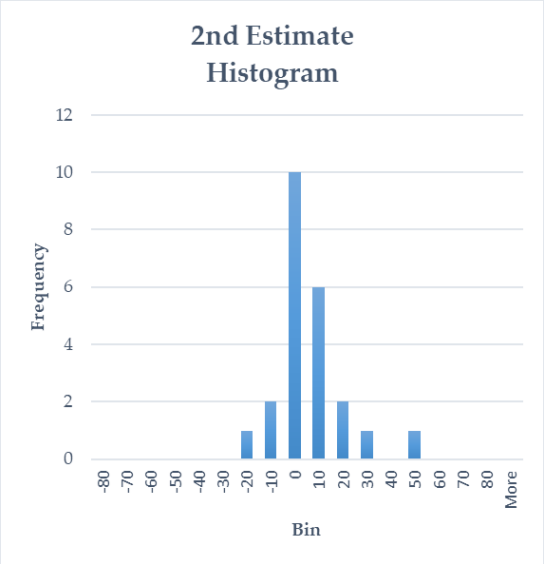




As can be seen from Figure 1, the histogram for the proposed 1st Estimate is more compact than the histogram for the original 1st Estimate, which indicates fewer extreme deviations from the Actual GA Rate.

For comparison, Figure 2 illustrates the histogram of the monthly deviation from the Actual GA Rate for the 2nd Estimate.

Figure 2 - Histogram of Monthly Deviations of 2nd Estimate Rate from Actual GA Rate (Jan. 2018 - Nov. 2019)



As can be seen, the 2nd Estimate is much closer to the Actual GA Rate than any of the 1st Estimates. The single most extreme deviation shown in the figure is the consequence of a one-off GA cost adjustment in August 2019.

Appendix D
Considerations on the Effect of Smoothing the Commodity Rate

Setting fixed rates for commercial and industrial consumers would raise system costs, particularly for residential consumers. Currently, over 40 per cent of consumption is exposed to wholesale market prices, creating a strong incentive for these consumers to respond to market signals and manage their consumption accordingly. Establishing fixed rates for commercial and industrial consumers would eliminate this incentive, leading to periods of over- and under-consumption, and therefore raising costs for all other consumers.

Even small changes in consumption patterns could have a large dollar impact. For example, if five per cent of commercial and industrial load moved consumption to on-peak periods because they are on a fixed rate, the increase in system cost would be in the hundreds of millions annually. This figure is based on 3TWh of consumption and the 6 cent/kilowatt-hour (¢/kWh) difference between the Ontario Energy Board's mid- and on-peak rates, leading a difference of $180M.

Providing fixed rates to Class B commercial and industrials that are below the true cost of consumption, i.e., a subsidy, would have much bigger impacts on market efficiency and other consumers. Customers exposed to market prices have a variety of ways they can manage their electricity costs, including Global Adjustment. Some customers actively manage their consumption by using energy management and telemetry systems whereas others hedge their price risk with third-party retailers and energy service providers. There are over 20 licensed, active retailers in Ontario, many of whom provide electricity pricing and hedging services[1].

One company, Local Authority Services (LAS), created by the Association of Municipalities of Ontario, provides a rate-smoothing option to municipalities and options to pool costs with other customers enabling 75 per cent of commodity prices to be fixed. LAS also provides municipalities with options to move away from time-of-use rates on the basis of lower wholesale prices.

[1] https://www.oeb.ca/consumer-protection/energy-contracts/licensed-energy-retailers

Appendix E
Detailed Data Observations for Option #1
(ICI-Related Data Reporting and Measurement)

For this assessment, the IESO reviewed the five historical base periods from 2014-2019 and compared the 10 highest peak hours based on 'Initial' and 'Preliminary' adjusted AQEW data to the 'Final' adjusted AQEW data. The broader data set was intentionally used to provide a better understanding of the relationship between the individual peaks and any misalignment that occurs across data sets.

Analysis of Option #1 of the ICI-Related Data Reporting and Measurement Review[1] showed:

- The 10 peak hours for all five historical base periods aligned across all three data sets.
- The ranking of the five peak hours also aligned across all three data sets with the exception of the 2014 – 2015 base period, when the 2nd and 3rd peak hours were transposed at 'Final.'
- A similar misalignment occurred in the 6 - 10 peak hours for the 2017 – 2018 and 2018 – 2019 base periods. The 7th and 8th initial peak hours for the 2017 – 2018 transposed at 'Preliminary' while the 8th, 9th and 10th 'Initial' and 'Preliminary' peak hours for the 2018 – 2019 base period transposed at 'Final.'
- The adjusted AQEW values for each peak hour differed between 'Initial,' 'Preliminary' and 'Final' in almost every case. These differences ranged between +73MW and -50MW in the 'Initial' data set. A smaller difference was observed in the 'Preliminary' data set, indicating closer alignment to the 'Final' data set.
- The differences in adjusted AQEW values between data sets did not impact the identification of a peak hour, however it did introduce a misalignment in the ranking of the peak hours between data sets in some cases. It was observed that when there was a small difference in the adjusted AQEW value when compared to the previous peak hour, it increased the likelihood of a ranking misalignment in the 'Initial' and 'Preliminary' datasets.

Since AQEW is based on meter data from registered wholesale meters, the quality of the 'Initial' and 'Preliminary' adjusted AQEW, as compared to 'Final' adjusted AQEW, is largely dependent on meter data processes and the participant's effectiveness in responding to meter trouble issues. As a result, unresolved meter trouble issues at the time of 'Initial' and 'Preliminary' publication introduces meter data estimates which could impact the adjusted AQEW values enough to create ranking misalignments or possibly even the identification of a false peak. For these reasons, it is important to understand that publication of 'Initial' and 'Preliminary' adjusted AQEW should only be used as a means of early indication and not as confirmation of the peak hour and its ranking. Confirmation of the peak hour can only be determined once the 'Final' adjusted AQEW is published.

[1] See Appendix F for the data analysis of Option #1 (ICI).

Appendix F
Data Analysis for Option #1 (ICI Review)

Base Period	Initial Adjusted AQEW Peaks (6 Calendar Days)				Preliminary Adjusted AQEW Peaks (10 Business Days)				Final Adjusted AQEW Peaks (20 Business Days)				Delta's		
	Day	Hour	Adjusted AQEW	Ranking	Day	Hour	Adjusted AQEW	Ranking	Day	Hour	Adjusted AQEW	Ranking	Previous Peak	Initial to Final	Preliminary to Final
2014-15	2015/01/07	19	21,100.680	1	2015/01/07	19	21,108.121	1	2015/01/07	19	21,118.570	1	-	-17.890	-10.449
	2014/08/26	17	21,011.618	2/3	2014/08/26	17	20,998.529	2/3	2015/02/19	20	20,976.264	2	142.306	35.354	22.265
	2015/02/19	20	20,956.445	3/2	2015/02/19	20	20,971.718	3/2	2014/08/26	17	20,967.233	3	9.031	-10.788	4.485
	2015/02/23	20	20,841.291	4	2015/02/23	20	20,855.777	4	2015/02/23	20	20,862.399	4	104.834	-21.108	-6.622
	2014/09/05	17	20,830.993	5	2014/09/05	17	20,830.888	5	2014/09/05	17	20,830.888	5	31.511	0.105	0.000
	2014/07/22	17	20,773.051	6	2014/07/22	17	20,743.655	6	2014/07/22	17	20,744.354	6	86.534	28.697	-0.699
	2015/02/26	20	20,661.900	7	2015/02/26	20	20,661.482	7	2015/02/26	20	20,663.704	7	80.650	-1.804	-2.222
	2015/02/24	20	20,615.544	8	2015/02/24	20	20,631.053	8	2015/02/24	20	20,634.804	8	28.900	-19.260	-3.751
	2015/01/13	19	20,589.351	9	2015/01/13	19	20,589.387	9	2015/01/13	19	20,589.256	9	45.548	0.095	0.131
	2015/02/25	20	20,571.176	10	2015/02/25	20	20,569.628	10	2015/02/25	20	20,573.923	10	15.333	-2.747	-4.295
2015-16	2015/07/28	17	22,025.467	1	2015/07/28	17	22,025.744	1	2015/07/28	17	22,015.634	1	-	9.833	10.110
	2015/07/29	17	21,909.176	2	2015/07/29	17	21,909.546	2	2015/07/29	17	21,899.846	2	115.788	9.330	9.700
	2015/08/17	17	21,882.345	3	2015/08/17	17	21,881.377	3	2015/08/17	17	21,882.182	3	17.664	0.163	-0.805
	2015/07/27	18	21,576.271	4	2015/07/27	18	21,573.545	4	2015/07/27	18	21,561.628	4	320.554	14.643	11.917
	2015/09/03	14	21,412.528	5	2015/09/03	14	21,428.704	5	2015/09/03	14	21,428.697	5	132.931	-16.169	0.007
	2015/09/02	17	21,393.937	6	2015/09/02	17	21,393.937	6	2015/09/02	17	21,393.937	6	34.760	0.000	0.000
	2015/09/08	17	21,375.054	7	2015/09/08	17	21,375.054	7	2015/09/08	17	21,369.243	7	24.694	5.811	5.811
	2015/09/07	17	21,219.351	8	2015/09/07	17	21,219.351	8	2015/09/07	17	21,206.267	8	162.976	13.084	13.084
	2015/08/19	17	21,156.332	9	2015/08/19	17	21,156.332	9	2015/08/19	17	21,158.363	9	47.904	-2.031	-2.031
	2015/09/01	17	20,872.523	10	2015/09/01	17	20,872.523	10	2015/09/01	17	20,872.523	10	285.840	0.000	0.000
2016-17	2016/08/10	18	22,634.164	1	2016/08/10	18	22,632.644	1	2016/08/10	18	22,636.692	1	-	-2.528	-4.048
	2016/09/07	17	22,526.876	2	2016/09/07	17	22,526.876	2	2016/09/07	17	22,526.876	2	109.816	0.000	0.000
	2016/08/11	17	22,317.228	3	2016/08/11	17	22,314.105	3	2016/08/11	17	22,317.771	3	209.105	-0.543	-3.666
	2016/07/13	18	22,188.456	4	2016/07/13	18	22,188.464	4	2016/07/13	18	22,188.464	4	129.307	-0.008	0.000
	2016/08/12	17	21,977.961	5	2016/08/12	17	21,953.015	5	2016/08/12	17	21,904.371	5	284.093	73.590	48.644
	2016/08/04	17	21,867.863	6	2016/08/04	17	21,868.052	6	2016/08/04	17	21,868.262	6	36.109	-0.399	-0.210
	2016/07/22	17	21,665.447	7	2016/07/22	17	21,665.426	7	2016/07/22	17	21,664.940	7	203.322	0.507	0.486
	2016/09/06	17	21,641.261	8	2016/09/06	17	21,641.009	8	2016/09/06	17	21,641.009	8	23.931	0.252	0.000
	2016/08/05	12	21,427.424	9	2016/08/05	12	21,427.341	9	2016/08/05	12	21,427.324	9	213.685	0.100	0.017
	2016/09/08	17	21,315.459	10	2016/09/08	17	21,323.731	10	2016/09/08	17	21,323.731	10	103.593	-8.272	0.000
2017-18	2017/09/25	17	21,191.607	1	2017/09/25	17	21,169.170	1	2017/09/25	17	21,170.494	1	-	21.113	-1.324
	2017/09/26	17	21,052.232	2	2017/09/26	17	21,037.828	2	2017/09/26	17	21,038.558	2	131.936	13.674	-0.730
	2017/06/12	17	20,706.702	3	2017/06/12	17	20,699.451	3	2017/06/12	17	20,701.997	3	336.561	4.705	-2.546
	2018/01/05	18	20,225.852	4	2018/01/05	18	20,225.853	4	2018/01/05	18	20,238.280	4	463.717	-12.428	-12.427
	2017/07/19	18	20,122.469	5	2017/07/19	18	20,122.460	5	2017/07/19	18	20,122.460	5	115.820	0.009	0.000
	2018/01/06	18	20,068.148	6	2018/01/06	18	20,033.259	6	2018/01/06	18	20,045.991	6	76.469	22.157	-12.732
	2018/01/03	18	19,921.571	7/8	2017/09/24	17	19,896.912	7	2017/09/24	17	19,897.965	7	148.026	23.606	-1.053
	2017/09/24	17	19,896.955	8/7	2018/01/03	18	19,887.144	8	2018/01/03	18	19,887.144	8	10.821	9.811	0.000
	2017/07/06	18	19,876.210	9	2017/07/06	18	19,865.073	9	2017/07/06	18	19,869.376	9	17.768	6.834	-4.303
	2017/12/13	18	19,855.661	10	2017/12/13	18	19,855.744	10	2017/12/13	18	19,860.336	10	9.040	-4.675	-4.592
2018-19	2018/09/05	17	22,554.378	1	2018/09/05	17	22,551.777	1	2018/09/05	17	22,551.315	1	-	3.063	0.462
	2018/07/05	15	22,398.001	2	2018/07/05	15	22,397.961	2	2018/07/05	15	22,415.022	2	136.293	-17.021	-17.061
	2018/07/04	18	22,123.062	3	2018/07/04	18	22,122.981	3	2018/07/04	18	22,122.730	3	292.292	0.332	0.251
	2018/08/28	17	21,647.165	4	2018/08/28	17	21,647.397	4	2018/08/28	17	21,643.799	4	478.931	3.366	3.598
	2018/09/04	17	21,380.454	5	2018/09/04	17	21,376.182	5	2018/09/04	17	21,379.327	5	264.472	1.127	-3.145
	2018/07/03	19	21,290.930	6	2018/07/03	19	21,290.929	6	2018/07/03	19	21,290.876	6	88.451	0.054	0.053
	2018/08/15	17	20,976.601	7	2018/08/15	17	20,980.269	7	2018/08/15	17	20,980.238	7	310.638	-3.637	0.031
	2018/08/14	17	20,953.770	8/10	2018/07/24	17	20,946.444	8/9	2018/07/16	12	20,954.312	8	25.926	-0.542	-7.868
	2018/07/16	12	20,898.300	9/8	2018/08/14	17	20,939.380	9/10	2018/07/24	17	20,943.129	9	11.183	-44.829	-3.749
	2018/07/24	17	20,888.811	10/9	2018/07/16	12	20,908.662	10/8	2018/08/14	17	20,939.336	10	3.793	-50.525	-30.674
													Avg.	1.284	-0.199
													Min.	-50.525	-30.674
													Max	73.590	48.644

Appendix G
Ontario Demand Report

Report Description

TITLE: Realtime Constrained Totals Report

CONFIDENTIALITY: Public

PURPOSE: Provides the total energy and operating reserve scheduled, and Ontario Demand, as established by the constrained run of the IESO's Dispatch Scheduling and Optimization (DSO) algorithm, for each 5-minute interval of the hour. This includes the following components:

- Total energy
- Total dispatchable load
- Total load
- Total loss
- Total 10-minute spinning reserve
- Total 10-minute non-spinning reserve
- Total 30-minute non-spinning reserve

FREQUENCY: Published every 5 minutes

GRANULARITY: 5-minute intervals

NOTES: A value shown in red indicates it has been administered

DEFINITIONS:

TOTAL ENERGY: Total energy dispatched into the IESO-controlled grid, calculated as Ontario generation plus imports

TOTAL LOSS: Total losses in the IESO-controlled grid, calculated by the load flow

TOTAL LOAD: Total system load, calculated as Total Energy - Total Loss

TOTAL DISP LOAD: Total MW withdrawn from the IESO-controlled grid by dispatchable load, where the value represents the system-wide amount of dispatchable load that was dispatched down. For example, if the load is bidding 100 MW and gets dispatched down to 90 MW, then the Total Disp Load quantity is 10 MW

ONTARIO DEMAND: Total Ontario electricity demand, calculated as:

Total Energy + Total Generation Without Offers -Total Exports +Total Off Market +/- Over/Under Generation

Where:

- **Total Energy**: Total energy dispatched into the IESO controlled grid, calculated as Ontario generation plus imports
- **Total Generation Without Offers**: Total energy injected into the IESO controlled grid from generators that have not submitted offers

Report Description

- **Total Exports:** Total energy dispatched outside Ontario from the IESO-controlled grid
- **Total Off Market:** Off market consists of the following types of transactions:
    - **Segregated Mode of Operation:** Total energy from resources in the IESO-controlled grid that are disconnected from the Ontario system and connected to an interconnected transmission system for a period of time, known as the Segregated Mode of Operation (SMO)
    - **Emergency:** IESO acquires emergency energy in order to maintain the reliability of the IESO-controlled grid or provides emergency energy to an interconnected transmission system
    - **Simultaneous Activation of Reserve** IESO and other control areas may simultaneously activate their 10-minute operating reserve to address contingency events
    - **Inadvertent Interchange:** The difference between the scheduled intertie flow and actual intertie flow
- **Over/Under Generation**: Total energy resulting from over or under generation in the event of differences when the Dispatch Scheduling and Optimization (DSO) tool is balancing supply and demand

Appendix H
Detailed Data Observations for Option #2
(ICI-Related Data Reporting and Measurement)

For this assessment, the IESO reviewed seven historical base periods from 2012 to 2019 and compared the Ontario Demand peak day attributes with coincident adjusted AQEW data (the proposed method) to the adjusted AQEW peak hours (current method).

Analysis of Option #2 of the ICI-Related Data Reporting and Measurement Review showed:

- The Ontario Demand peak day attribute is closely aligned with the adjusted AQEW peak day as demonstrated by the fact that 30 of the 35 peak days were aligned. Note that ranking of the peak day was not a factor in the analysis; the main criterion was identifying the same peak days within the top five peak days. In the five cases where the Ontario Demand peak day did not align with the adjusted AQEW peak day, those five days were replaced with either the 6th or 7th adjusted AQEW peak day. For example, in base period 2015 – 2016, the five Ontario Demand peak days included the 1st, 2nd, 3rd, 6th and 7th adjusted AQEW peak days.
- Comparison of Ontario Demand peak day and hour attributes introduced an additional seven outliers as only 23 of 35 peak day/hours were aligned. For these seven outliers, Ontario Demand data identified the hour either immediately before or after the adjusted AQEW hour.

To better understand the impact of these differences, the IESO compared the sum of the five adjusted AQEW values coincident with Ontario Demand peaks to the sum of the five adjusted AQEW peaks for each base period. The sum of the five peaks is the value that is used to represent the Ontario system peak in the determination of an ICI participant's Peak Demand Factor. The average difference over the seven historical base periods was 165 MWh or 0.15% and the differences ranged from 0 MWh (2016 – 2017) to 370 MWh (2015 – 2016).

Comparison of the methods supports the finding that the two profiles are closely aligned, but not exact. From the IESO's perspective, since the Peak Demand Factor is an application of rate distribution, there would be no material difference between the two methods as either declaration would achieve the intended outcome of identifying an ICI participant's consumption contribution during Ontario's peak periods. However, using the Ontario Demand method would eliminate stakeholders' concerns regarding the timeliness of peak hour confirmation and would therefore eliminate the uncertainty and economic impacts associated with the current 20 business day lag. Using Ontario Demand peak hour would be more economically efficient as it achieves the same or better results at lower cost.

An important consideration is that this analysis is limited to understanding the implications of using Ontario Demand and the coincident adjusted AQEW method to support the ICI program. The IESO has not undertaken a detailed assessment of how this method would impact current ICI participants' peak day strategies and behaviours (other than eliminating the peak day uncertainty associated with current method). The IESO has also not evaluated the potential impact from a reliability or operational perspective resulting from this change. Additional targeted and detailed analysis is required to ensure that this change will not result in any unintended consequences.

Appendix I
Data Analysis for Option #2

Base Period	ICI based on Ontario Adjusted AQEW Peaks					ICI based on Ontario Demand Peaks						Delta of 5 (Adjusted AQEW peaks and coincident Adjusted AQEW peaks)		Notes
	Day	Hour	Adjusted AQEW	Ranking	Sum of 5 Adjusted AQEW peaks	Day	Hour	Ontario Demand	Coincident Adjusted AQEW	Coincident Adjusted AQEW Peak Day Ranking	Sum of 5 coincident Adjusted AQEW peaks			
2012-13	07/17/2012	16	23,953.751	1	116,599.002	07/17/2012	16	24,636	23,953.751	1	116,593.811	5.191	0.0045%	- 4/5 peak day/hour alignment - 4/5 peak day alignment - 1/5 peak day replaced with 6th AQEW peak day
	07/04/2012	17	23,355.412	2		06/20/2012	16	24,107	23,238.928	3				
	06/20/2012	16	23,238.928	3		07/04/2012	17	23,910	23,355.412	2				
	07/23/2012	14	23,059.720	4		06/21/2012	16	23,801	22,986.000	6				
	07/06/2012	16	22,991.191	5		07/23/2012	14	23,745	23,059.720	4				
2013-14	07/17/2013	17	24,141.286	1	117,536.827	2013/07/17	14	24,927	24,093.661	1	117,382.269	154.558	0.1317%	- 3/5 peak day/hour alignment - 5/5 peak day alignment
	07/16/2013	17	23,551.148	2		2013/07/16	17	24,224	23,551.148	2				
	07/18/2013	17	23,503.678	3		2013/07/18	12	24,139	23,396.745	3				
	07/19/2013	14	23,234.069	4		2013/07/19	14	23,875	23,234.069	4				
	07/15/2013	17	23,106.646	5		2013/07/15	17	23,557	23,106.646	5				
2014-15	01/07/2015	19	21,118.570	1	104,755.354	2015/01/07	18	21,814	21,037.740	1	104,499.771	255.583	0.2446%	- 2/5 peak day/hour alignment - 4/5 peak day alignment - 1/5 peak day replaced with 6th AQEW peak day
	02/19/2015	20	20,976.264	2		2015/02/19	20	21,494	20,976.264	2				
	08/26/2014	17	20,967.233	3		2014/08/26	17	21,363	20,967.233	3				
	02/23/2015	20	20,862.399	4		2014/07/22	17	21,300	20,744.354	6				
	09/05/2014	17	20,830.888	5		2015/02/23	19	21,272	20,774.180	4				
2015-16	07/28/2015	17	22,015.634	1	108,787.987	2015/07/28	17	22,516	22,015.634	1	108,418.672	369.315	0.3406%	- 3/5 peak days aligned - 3/5 peak days/hour aligned - 2/5 peak days replace by 6 and 7th AQEW peak day
	07/29/2015	17	21,899.846	2		2015/07/29	17	22,471	21,899.846	2				
	08/17/2015	17	21,882.182	3		2015/08/17	17	22,383	21,882.182	3				
	07/27/2015	18	21,561.628	4		2015/09/02	17	22,063	21,393.937	6				
	09/03/2015	14	21,428.697	5		2015/09/08	18	21,923	21,227.073	7				
2016-17	08/10/2016	18	22,636.692	1	111,574.174	2016/09/07	17	23,213	22,526.876	1	111,574.174	-	0.0000%	- 5/5 peak day/hour alignment - 5/5 peak day alignment
	09/07/2016	17	22,526.876	2		2016/08/10	18	23,100	22,636.692	2				
	08/11/2016	17	22,317.771	3		2016/08/11	17	22,812	22,317.771	3				
	07/13/2016	18	22,188.464	4		2016/07/13	18	22,659	22,188.464	4				
	08/12/2016	17	21,904.371	5		2016/08/12	17	22,402	21,904.371	5				
2017-18	09/25/2017	17	21,170.494	1	103,271.789	2017/09/25	17	21,786	21,170.494	1	103,195.320	76.469	0.0741%	- 4/5 peak day/hour alignment - 4/5 peak day alignment - 1/5 peak day replaced with 6th AQEW peak day
	09/26/2017	17	21,038.558	2		2017/09/26	17	21,542	21,038.558	2				
	06/12/2017	17	20,701.997	3		2017/06/12	17	21,168	20,701.997	3				
	01/05/2018	18	20,238.280	4		2018/01/05	18	20,906	20,238.280	4				
	07/19/2017	18	20,122.460	5		2018/01/06	18	20,768	20,045.991	6				
2018-19	09/05/2018	17	22,551.315	1	110,112.193	2018/09/05	18	23,240	22,399.083	1	109,816.388	295.805	0.2694%	- 2/5 peak day/hour alignment - 5/5 peak day alignment
	07/05/2018	15	22,415.022	2		2018/07/05	16	23,046	22,376.960	2				
	07/04/2018	18	22,122.730	3		2018/07/04	19	22,518	22,017.219	3				
	08/28/2018	17	21,643.799	4		2018/08/28	17	21,990	21,643.799	4				
	09/04/2018	17	21,379.327	5		2018/09/04	17	21,885	21,379.327	5				
Summary														- 23/35 peak day/hour alignment (65.7%) - 30/35 peak day alignment (85.7%) - Average MW delta between the 5 adjusted AQEW peaks and 5 conincident adjusted AQEW peaks is 165.27MW
2019-20 (as of Jan. 6, 2020)	07/05/2019	17	21,275.000	1	105,452.000	2019/07/29	17	21,791	21,068.000	3	105,247.000	205.000	0.1948%	YTD Analysis - 4/5 peak day/hour alignment - 5/5 peak day alignment
	07/20/2019	17	21,147.000	2		2019/07/05	17	21,716	21,275.000	1				
	07/29/2019	17	21,068.000	3		2019/07/20	18	21,646	20,942.000	2				
	07/19/2019	12	21,006.000	4		2019/07/19	12	21,545	21,006.000	4				
	07/04/2019	18	20,956.000	5		2019/07/04	18	21,423	20,956.000	5				